REMARKS

Reconsideration of the present application is respectfully requested. Claims 1, and 3-9 are pending. Claim 1 has been amended. Support for the amendments is found in the claims as originally filed, and throughout the specification. No new matter has been added.

The Examiner noted that page 5 of the response of 2/14/02 was missing, and a substitute page is required. A response was filed 2/19/02. A substitute sheet of page 5 of the response of 2/19/02 is submitted in order to comply with the requirement. If this is done in error, Applicants request early notification in order to properly comply with the requirement.

The paragraph beginning on line 25 of page 23 has been amended to correct a typographical error.

The marked up version of these amendments is found on a separate sheet attached to this amendment and titled **"Version with Markings to Show Changes Made."** It is respectfully requested that the amendments be entered.

Rejections under 35 U.S.C. §101:

Claims 1, 3-9 are rejected under 35 U.S.C. §101 as not having either a credible asserted utility or a well-established utility.

The Examiner asserts that "...neither Applicants' specification nor the prior art teaches or provides guidance for how RuvB activity can be assayed or tested."

Claim 1 has been amended to recite "wherein the polynucleotide modulates the level of RuvB polypeptide." Support for this amendment can be found on page 53, lines 28-32.

Contrary to the Examiner's assertion, assays for RuvB are known in the art. For example, Qui, *et al.* (*J. Biol. Chem.* 273(43):27786-27798 1998, Ref. A4 in IDS submitted 8/28/00) describe several assays for RuvB including gels and immunoblots (page 27787, col. 1, paragraph 4; and Fig. 3, page 27791), and RNA polymerase II holoenzyme binding (page 27790, col. 1, paragraph 4), and complementation tests in yeast (page 27790, col. 2, 3rd paragraph). In their study of the RuvB homologue TIP49, Makino, *et al.* (*Biochem. Biophys. Res. Comm.* 245:819-823 1998, Ref. A5 in IDS

submitted 8/28/00) describe ELISA and immunoblotting assays (page 820, col. 2, paragraphs 5 and 6; and Fig. 3, page 822). Kishimoto, et al. (EP 0 926 157 A1, Ref A12 in IDS submitted 2/22/01) further disclosed ATPase and helicase assays for TIP49 (Examples 7-9, page 16, paragraph 0095 page 17, paragraph 0101). Further, various immunoassays are discussed in the specification (page 29, line 25 – page 30, line 4), particularly a competitive ELISA, which is particularly useful for measuring protein levels.

Applicants believe that the present invention has a well-established utility for which they have proposed specific, substantial and credible uses in the present application. As amended, the claims require the utility of modulating the level of RuvB polypeptide. Applicants have properly addressed by argument and amendment the grounds for the rejection of claims 1, and 3-9 under 35 U.S.C. §101 and respectfully request that the rejection be withdrawn.

Rejections under 35 U.S.C. §112, first paragraph – Utility:

Claims 1, and 3-9 are rejected under 35 U.S.C. §112, first paragraph as the claimed invention lacks utility, therefore one of skill in the art would know how to use the invention.

As the Applicants have responded to the utility rejection under 35 U.S.C. §101, it is believed that the utility rejection has been overcome. As amended, the claims require the utility of modulating the level of RuvB polypeptide. Therefore, it is respectfully requested that the concomitant rejection of claims 1, and 3-9 under 35 U.S.C. §112, first paragraph based on a lack of utility should be withdrawn.

CONCLUSION

In light of the foregoing remarks and amendments, it is believed that claims 1, and 3-9 are in condition for allowance. Withdrawal of the outstanding rejections and allowance of all of the remaining claims is respectfully requested.

Serial No. 09/589,510
Group Art Unit: 1638

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

The Applicants have used underlining to denote additions to the original text and square brackets [ ] to denote deletions of the original text.

In the Specification:

The paragraph beginning at page 23, line 25 has been amended as follows:

A polynucleotide of the present invention is inclusive of:

(a) a polynucleotide encoding a polypeptide of SEQ ID NOS: 2, 4, 6, 8, 10 and conservatively modified and polymorphic variants thereof, including exemplary polynucleotides of SEQ ID NOS: 1, 3, 5, 7, 9; polynucleotide sequences of the invention also include the maize [R2] RuvB polynucleotide sequences as contained in plasmids deposited with American Type Culture Collection (ATCC) and assigned Accession Number 207193.

In the Claims:

Claim 1 has been amended as follows:

1. (Twice Amended) An isolated nucleic acid comprising a [member] polynucleotide selected from the group consisting of:
   (a) a polynucleotide having at least 85% sequence identity to a polynucleotide of SEQ ID NO: 3, wherein the % sequence identity is based on the entire coding region and is calculated by the GAP algorithm under default parameters[, wherein the polynucleotide encodes a polypeptide with RuvB activity];
   (b) a polynucleotide encoding a polypeptide of SEQ ID NO: 4;
   (c) a polynucleotide of SEQ ID NO: 3; and

(d) a polynucleotide which is fully complementary to a polynucleotide of (a), (b), or (c),

wherein the polynucleotide of (a), (b), (c), or (d) modulates the level of RuvB polypeptide.